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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/353,547	07/14/1999	STEFANOS SIDIROPOULOS	9797-022-999	3752

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EXAMINER

KIM, KEVIN

ART UNIT

PAPER NUMBER

2634

DATE MAILED: 05/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/353,547

Applicant(s)

SIDIROPOULOS, STEFANOS

Examiner

Kevin Y Kim

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 1999 and 22 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-73 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-7 and 20 is/are allowed.
- 6) ☒ Claim(s) 8,10-12,15,18,19,21-29,35-45,47-59 and 63-73 is/are rejected.
- 7) ☒ Claim(s) 9,13,14,16,17,30-34,46 and 60-62 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 8,10-12,15,18,19,21-29,37-45,49-51,55-58,64,65,69,70-72 are rejected under 35 U.S.C. 102(e) as being anticipated by Woeste et al (US 6,232,806).

Consider claims 8,15,18,19,21,37,50,64. Referring to Fig. 1A Woeste et al discloses a master device 22 including a phase aligner for synchronizing with slave devices (34,44). The slave devices appear not to have phase alignment circuitry since phase adjustment is all done by the master device 22. The phase detector (54) determines a phase offset from the master to each of the slave devices. The determined offset values are stored in the control logics (56). And each of them is used for transmission of data from the master device to a respective slave device. More specifically, the variable delay line (52) is driven to output data based on the phase offset. Although the distribution of a clock signal is described as an exemplary embodiment, Woeste et al further teaches that the signal between the master and slave devices applies to single-ended signals of varying types, which are considered to include data/request line signals as claimed as well as “a portion of an access request” as called for in claim 49. See col.14, lines 60-63. Regarding claims 10-12 see a variable delay line (52,62,...) for each of slave devices.

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Regarding claims 22,23,38,39,51,65 the phase of a clock signal is adjusted by the phase detector in combination with control logic (56,66,...)/ “a phase rotator” controlling the variable delay line (52)/ “output buffer.” And based on the phase adjusted clock signal, data is transmitted. See the encircled B and D, output from the variable delay lines.

Regarding claims 24,40,56, for determining the phase offset, a signal/ “data” is transmitted to the slave device. See Fig. 1B showing the signals, as indicated by the encircled B and D, inputted to slave devices.

Regarding claims 25,41, since the “request line” is not differentiated from the data line as used in claim 21, the data/clock line reads on the request line.

Regarding claims 26, 27, 42,43,57,58,71,72, Fig. 1A along with Fig. 1B shows the phase detector receives data, as indicated by the encircled A and C, represented from the slave devices for determining the phase offset.

Regarding claims 28,44 the downstream path from the master to the slave device may be called “a request line” while the reverse path called “the data line.”

Regarding claims 29,45 there are a plurality of control logic (56,66,...) in the master that store “a plurality of additional phase offset values.”

Regarding claims 55,69, propagation time/ “flight time” of a signal from a transmitter to a receiver is a known cause of phase offset between a transmitter and a receiver.

Regarding claims 56,70 see the system clock (21), which can be a data generator as well according to col. 14, lines 60-63 as stated above.

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3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 35, 36,47,48,52-54,59,66-68,73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woeste et al (US 6,232,806) as applied to claim 21 above.

Consider claims 35,36,47, 48,59,73. Woeste et al discloses all the subject matter claimed except for using the offset value in the transmission of data over a plurality of data lines.

However, it is well known in the art two communication device could communicate over a plurality of data lines such as parallel data communication. Thus, it would have been obvious to one skilled in the art at the time the invention was made to provide a plurality of data lines between the master device and the slave device for parallel communication, in which case all the lines would be equally phase adjusted based on the determined phase offset between the master device and the slave device.

Regarding claims 52, 53,66,67 a phase locked loop and a delay locked loop are well known in the art for detecting a phase difference between two signals and synchronizing them. Thus, it would have been an obvious alternative method of synchronizing the clock/data signals of Woeste et al.

Regarding claims 54,68, it appears to be a matter of design choice whether to assess the phase offset periodically, since one would adjust the phase of a clock/data less often when the phase offset over time is not significant.

Allowable Subject Matter

5. Claims 1-7,20 are allowed.
6. Claims 9,13,14,16,17, 30-34,46,60-63 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Perino et al (US 6,426,984) discloses synchronization between master and slave devices.

Joo (US 5,757,786) discloses the use of a phase offset stored in a buffer for adjusting a signal

Read et al discloses phase offset registers for a plurality of slave devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y Kim whose telephone number is 703-305-4082. The examiner can normally be reached on 8AM --5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

kvk
May 9, 2003



STEPHEN CHIN
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